

Abstract

The invention includes an apparatus and a method that provides a shared global word line MRAM structure. The MRAM structure includes a first bit line conductor oriented in a first direction. A first sense line conductor is oriented in a second direction. A first memory cell is physically connected between the first bit line conductor and the first sense line conductor. A global word line is oriented in substantially the second direction, and magnetically coupled to the first memory cell. A second bit line conductor is oriented in substantially the first direction. A second sense line conductor is oriented in substantially the second direction. A second memory cell is physically connected between the second bit line conductor and the second sense line conductor. The global word line is also magnetically coupled to the second memory cell. The first memory cell and the second memory cell can be MRAM devices. A logical state of the MRAM devices can be determined by an orientation of magnetization of the MRAM devices. The orientation of magnetization of the first memory cell can be determined by current conducted by the first bit line and the global word line. The orientation of magnetization of the second memory cell can be determined by current conducted by the second bit line and the global word line. A logical state of the first memory cell can be sensed by the first bit line and the first sense line. The logical state of the first memory cell can be determined by a sensing a resistance between the first bit line and the first sense line. A logical state of the second memory cell can be sensed by the second bit line and the second sense line. The logical state of the second memory cell can be determined by a sensing a resistance between the second bit line and the second sense line.